AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0065] on page 16 as follows:

[0065] Referring again to Figure 1, ~~The~~ the laser source 102 consists of a commercially available CW laser diode (SDL 5412) at 780nm associated with an acousto-optic modulator 108, that is used to chop pulses with a duration 120 ns (full width half-maximum), at a repetition rate 800 kHz. In order to reduce excess noise, a grating-extended external cavity is used, and the beam is spatially filtered using a polarisation maintaining single mode fibre 110. Light pulses are then split onto a 10% reflecting beam-splitter, one beam being the local oscillator (LO), the other Alice's signal beam. The data is organised in bursts of 60000 pulses, separated by time periods that are used to lock the phase of the LO and sequences of pulses to synchronise the parties. In the present experiment, there is a burst every 1.6 seconds, which corresponds to a duty cycle of about 5%, but this should be easy to improve.

Please amend paragraph [0066] beginning on page 16 as follows:

[0066] The desired coherent state distribution is generated by Alice by modulating randomly both the amplitude and phase of the light pulses with the appropriate probability law. In the present experiment, the amplitude of each pulse is arbitrarily modulated at the nominal 800 kHz rate. However, due to the unavailability of a fast phase modulator at 780 nm, the phase is not randomly modulated but scanned continuously from 0 to 2π using a piezoelectric modulator 120. For such a determinist phase variation, the security of the protocol is of course not warranted and thus no genuine secret key can be distributed. However, the experiment provides realistic data, that will have exactly the awaited structure provided that random phase permutation on Bob's data are performed. The amplitude modulator 114 is an integrated electro-optic $LiNbO_3$ Mach-Zehnder interferometer, allowing for small voltages inputs ($V_\pi = 2.5V$) at 780nm. All voltages for the electro-optic modulator 114 or the piezoelectric transductor 120 are generated by an acquisition board (National Instruments PCI6111E) connected to a computer. Though all discussions assume the modulation to be continuous, digitised voltages are obviously used in practice. With the experimental parameters, a resolution of 8 bits is enough to hide the amplitude or phase steps under shot noise. Since the modulation voltage is produced using a 16 bits

converter, and the data is digitised over 12 bits, we may fairly assume the modulation to be continuous. Due to an imbalance between the paths of the interferometer, the modulator extinction is not strictly zero. In the present experiment that is only aimed at a proof of principle, the offset field from the data received by Bob is subtracted. In a real cryptographic transmission, the offset field should be compensated by Alice, either by adding a zeroing field, or by using a better modulator. For each incoming pulse, either the x or p signal quadrature is measured by appropriate switching of the LO phase. The homodyne detection was checked to be shot-noise limited for LO power up to 5×10^8 photons/pulse. The overall homodyne detection efficiency is 0.76, due to the optical transmission (0.9), the mode-matching efficiency (0.92) and the photodiode quantum efficiency (0.92).